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lation of *bois aux arcs*, "wood for bows." The species of trees is the osage orange, used for bows and for making hedges; when cut green the wood never shrinks in seasoning.

Skullyville, name of a settlement in Arkansas, and of another in the Chá'hta Nation, Indian Territory. Probably derived from the French provisional term *escalín*, Spanish *escalino*, a coin twelve cents and a half in value. It is derived from the English *shilling*, and has passed into the Chá'hta language in the form: *iskúla*.

Prairiedanne, village in Arkansas: corrupted from French: *Prairie dinde* (d'Inde, coq d'Inde) or "turkey prairie."

Sangamon river, Illinois; a corruption of Saint Germain river.

Chilocco, name of an Indian training school in northern part of Indian Territory, near Arkansas city. Named after a streamlet in the vicinity, and representing the Creek term *tchí-láko*, *horse* ("large deer").

Wolf river is the name generally given by Indians of the Indian Territory to the North fork of the Canadian, near which Fort Reno is built. The Comanches call it, and the fort also, *Issa húnubi* (*issa*, *wolf*, *húnub'h*, *river*).—A. S. Gatschet.

THE HISTORY OF RELIGION.—As now employed, the word religion may be taken to include all human beliefs and actions with reference to the spirit world. Of course, in employing it, we shall be sometimes talking of creeds, again of conduct, a third time of the organization of society into clergy and laity, and finally of the apparatus employed in all so-called religious actions. For the purpose of collecting and classifying all accessible information regarding the subjects above-named, excluding controversy about dogmas, M. Guimet has established the Musée Guimet at Lyons, and founded the *Revue de l'Histoire des Religions*, under the supervision of M. Jean Réville. The journal is of the highest scientific value, and proves its rights to a place in literature by closing its ninth volume, in its fifth year.

The contents of this volume, in brief, are as follows:

The Pratimoksha Sûtra, from the Thibetan. M. W. Rockhill.

The Ballad of Lenore in Greece. J. Psichari.

Sacrifices of Carthage at the persecution of Decius. M. Massebieau.

Review of Müller's "Greek Mythology." M. Réville.

The great solar Goddess, Ama-Terasow Oho-kami. De Rosny.

Belief in future life among the Jews. E. Montet.

The Myth of Osiris. J. Lieblein.

A great portion of the volume is devoted to reviews and Bibliography.

MICROSCOPY.¹

THE BRAINS OF URODELA.—The following method of preparation is extracted from Professor H. F. Osborn's papers² on the brains of American Urodela, and from a letter in which the details are more fully given.

¹ Edited by Dr. C. O. WHITMAN, Mus. Comparative Zoology, Cambridge, Mass.

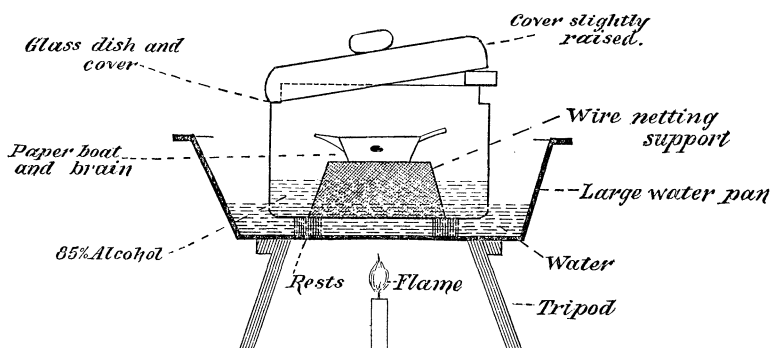
² Proc. Acad. Nat. Sc. of Philadelphia, 1883, p. 178, and 1884, p. 262.

"Before hardening the brains were inflated with Müller's fluid, so as to preserve the natural proportion of the cavities. After treatment with alcohol, they were placed for a week in dilute carmine. Calberla's egg-mass was employed as before, except that *the ventricles were injected with the mass before hardening*. The delicate parts of the brain-roof were thus retained. It appears now that celloidin may be used for this purpose to equal, if not to greater advantage in results, and with considerable economy of time. The sections were cut in absolute alcohol, were then floated upon a slide in consecutive order, from twenty to fifty at a time, and were covered with a delicate slip of blotting paper during treatment with oil of cloves."

Imbedding.—1. The egg-mass was prepared by shaking the white and yolk of egg together, with three drops of glycerine to each egg, and then well filtered through coarse cloth.

2. The bath is then prepared as follows:

a. Outside is a large water pan for boiling with the Bunsen burner, &c.



b. Inside this, supported on rests to prevent jarring, is a covered glass dish, filled to about one inch in depth with eighty-five per cent alcohol.

c. Within the glass dish is placed a piece of coarse wire netting which supports the imbedding box, raising it above the alcohol.

3. The box, made of paper in the usual way, and one-fourth filled with the imbedding mass, is kept in the bath until the mass is hardened enough to support the brain. The brain is next placed on the hardened stratum and covered with the fresh mass. The second stratum is hardened just enough to hold the brain in place, and then a third is added, filling the box.

4. The whole mass must now be allowed to harden through and through, requiring about fifteen minutes.

5. The hardening is completed by passing the box through three grades of alcohol—eighty, ninety and a hundred per cent, allowing it to remain twenty-four hours in each.

When the mass becomes nearly white and ceases to discolor the alcohol, it is ready for cutting.

SEMPER'S METHOD OF MAKING DRIED PREPARATIONS.—Semper's method, published in the *Sitzungsber. d. phys.-med. Ges., Würzburg*, 1880, and in the *Zoolog. Jahresbericht* for 1880, has been redescribed in detail by Dr. Sharp.¹

1. Place the object in a weak solution of chromic acid ($\frac{1}{4}$ –1 per cent), six to twenty-four hours, according to its size and nature. For small animals, such as annelids, gastropods, frogs, mice, &c., six to eight hours are sufficient.

2. Transfer to a large quantity of clean water, which must be often renewed until the acid has been so far withdrawn that the water remains uncolored by it. This part of the process may be much shortened by allowing a current of water to flow through the vessel. The usual time is from ten to twenty hours.

3. Treat with thirty to forty per cent alcohol ten to twenty-four hours, with sixty to seventy per cent alcohol two or three days (with larger objects a week), with ninety per cent alcohol two or three days or more, and finally with absolute alcohol.²

4. Transfer to turpentine and leave it until it becomes thoroughly saturated (two to three days). With large objects it is best to change the turpentine once.

5. Place the preparation in the air, in order to evaporate the turpentine, protecting it carefully from dust.

The preparation soon becomes white, resembling the whitest kid. It is light, stiff and, on account of the resin contained, perfectly insect-proof.

If hollow organs (stomach, bladders, lungs, &c.) are prepared, they may be inflated with air after they have remained a short time in turpentine, by so doing much space, and consequently much alcohol, are saved.

Professor Semper keeps his preparations in dust-proof, glass boxes, in which they can be seen from both sides.

To the five steps of the process a sixth, discovered by Semper a few years ago, is given by Dr. Sharp. It consists in placing the prepared object in a solution of glycerine and sugar, which brings back almost entirely the original color in many cases.

RABL'S METHODS OF STUDYING KARYOKINETIC FIGURES.³—*Material*.—The skin and kidney of *Proteus* and the epithelium of the mouth of salamander larvæ. The epithelium is the more favorable object, as the very large nuclei can be examined in sur-

¹ *Proc. Acad. Nat. Sci. Philad.*, 1884, pp. 24–27.

² The treatment with absolute alcohol is the most critical part of the whole process. *Absolutely* every particle of the water must be removed; for any tissue in which it remains will become spotted and eventually spoil. Dr. Sharp always takes the precaution of changing the absolute alcohol once or twice, and leaves the object in it three to seven days.

³ *Morph. Jahrb.*, x, H. 2, pp. 215–219, 1884.

face preparations. The achromatic spindles are seen to best advantage in the renal tissue.

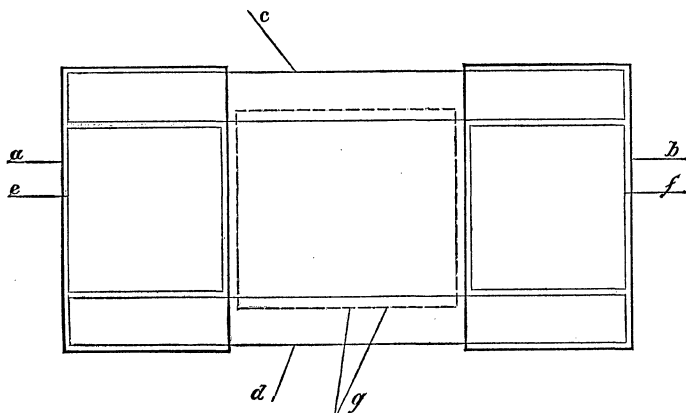
Preparation.—*a.* Place small fresh pieces of the object in *chrom-formic acid* (200 g. of a one-third per cent solution of chromic + four to five drops of strong formic acid) twelve to twenty-four hours.

b. Wash thoroughly and harden slowly, first twenty-four to thirty-six hours in sixty to seventy per cent alcohol, then in absolute alcohol.¹

c. Stain in either of the three following ways :

1. *Grenacher's hæmatoxylin* (strongly diluted with distilled water) twenty-four hours, followed, after washing, with acidulated alcohol (few drops of HCl.).

2. *Pfitzner's safranin* two to four hours, followed by absolute alcohol, in which the object is left until no visible cloud of color



remains upon turning it over (generally about two minutes), clove oil a few minutes and dammar.

3. Double-stain with hæmatoxylin and safranin; stain very feebly with the hæmatoxylin; wash and treat with acidulated alcohol, and then stain with safranin as in number 2.

Examination.—High powers are required in the study of the mounted preparation, either the homogeneous immersion $\frac{1}{18}$ of Zeiss, with Abbe's condenser, or that of Hartnack, No. III, $\frac{1}{24}$. Nachet's camera was employed in drawing.

It is well to work with green light, which can be obtained by inserting a green colored glass plate beneath the table of the microscope, as was first recommended by Engelmann.

The slide devised by Rabl enables one to examine a prepara-

¹ Instead of the chrom-formic acid a $\frac{1}{3}$ per cent solution of *platinum chloride* may be used, the preparation otherwise remaining the same. Chrom-formic acid causes the chromatin filaments to swell somewhat, so that their longitudinal division generally becomes obliterated; while platinum chloride causes a slight shrinkage, which brings out very distinctly the division of the filaments as well as the chromatin-spherules of Pfitzner.

tion from both sides. It consists of four pieces of glass of the shape and size seen in the figure (*a b c d*), and a cover-glass, *g*, which serves as the object-bearer. The two glasses, *a* and *b*, are painted on one side with chloroform balsam, and then connected by means of *c* and *d*. The frame thus formed is completed by adding the pieces, *e* and *f*, between *c* and *d*. The frame is next turned over and the middle portions of the glass bars, *c* and *d*, painted with balsam; and a thin glass cover, *g*, placed so as to rest on the pointed sides of *c* and *d*. This glass (*g*) bears the object in dammar, which is covered by another very thin glass. The object, lying between two thin cover-glasses, can be viewed from both sides with the highest powers.

THE PREPARATION OF MEROBLASTIC OVA.—*A. Reptilian Ova*.¹
—1. The ova taken from the oviduct are opened in a dilute solution of osmic acid (one per cent) and then the white removed as far as possible.

2. The osmic acid is then turned off and a weak solution of chromic acid ($\frac{1}{3}$ per cent) added, twenty-four hours.

3. With a sharp, fine pair of scissors cut around the germinal area, just outside its margin; and after it has been completely encircled with the incision, float it carefully off from the body of the yolk.

4. The yolk and acid are next removed, and a copious supply of clean water added, which must be several times renewed.

5. Calberla's fluid (glycerine, water and absolute alcohol in equal parts) three hours.

6. Hardened in ninety per cent alcohol.

7. Stained in Böhm's *carmine acetate* twenty-four hours.

B. Teleostean Ova (T. fario).—1. Chromic acid ($\frac{1}{3}$ per cent) twenty-four hours.

2. Distilled water two hours. The egg-membrane expands, and may now be easily removed.

3. Washed in distilled water twelve hours.

4. Absolute alcohol, glycerine and aq. dest. in equal parts four hours.

5. Absolute alcohol.

6. Böhm's *carmine acetate* one to two days.

7. Mixture of water (fifty vols.), glycerine (fifty vols) and muriatic acid (a half vol.), for a few minutes.

8. Washed in water, four to five hours.

9. Absolute alcohol twelve hours, preparatory to imbedding in paraffine.

BÖHM'S CARMINE ACETATE.—1. Carmine (four grms.) pulverized in 200 grms. water.

2. Ammonia added by drops until the solution becomes cherry-red (the carmine should now be fully dissolved).

¹ Kupffer. His and Braune. Archiv. Anat. Abth., 1882, p. 4.

3. Acetic acid slowly added until the cherry-red color becomes brick-red. The addition of acetic acid should be accompanied with stirring, and should cease the moment the change in color is effected.

4. Filter until no trace of a precipitate remains.

If the color is not sufficiently deep, a few drops of ammonia should be added before filtering, and the solution left in an open vessel until the alkali has volatilized.

Objects may be left for twenty-four hours or more in this fluid. The deep stain should be partially removed by immersion in a mixture of water (fifty vols.), glycerine (fifty vols.), and muriatic acid (a half vol.), for a few minutes. The karyokinetic figures are thus brought out with great distinctness.

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SCIENTIFIC NEWS.

— The Entomologische Nachrichten, founded by Dr. Katter at Putbus, is now edited by Dr. F. Karsch, and published by R. Friedländer & Sohn in Berlin. It is apparently improved, and No. 1 for this year is illustrated by a plate, with two wood-cuts. Dr. Ernest writes to it from Caracas, "we have here the locust plague! *Acridium peregrinum* in immense swarms. The eggs are infested by a small hymenopter, *Scelio famelicus* Say," noticed in the second report United States Entomological Commission, 270.

— A first duplicate of the "Philip Carpenter collection" of shells, reserved by the late Dr. Carpenter for private use and study, remains in possession of his widow, Mrs. Carpenter, 241 University street, Montreal. It contains, according to a catalogue accompanying it, 4039 species. There is also one of the best duplicates of the "Mazatlan collection" of Dr. Carpenter. These collections will be disposed of on reasonable terms, more especially to any public collection or working naturalist.

— *Nature* Nov. 20th, 1884, p. 72, contains a report of the Academy of Sciences, Paris, on the depth to which sunlight penetrates the waters of Lake Geneva, by MM. H. Fol and Ed. Tarasin. From a series of experiments carried out in August and September of that year, the author concludes that light reaches a depth of 170 meters, and probably a little more, the luminosity at this point being about equal to a clear moonless night.

— The first part of a detailed and well illustrated work on the embryology of *Peripatus*, by Dr. J. Kennel, appears in the *Arbeiten aus dem Zoologisch-Zoötomischen Institute in Würzburg*. Bd. vii, Heft 2. The six folding plates are packed with illustrations which show, without undervaluing the labors of Balfour, that this memoir will be the fullest and most important yet published in the development of this exceedingly curious creature.

— Mr. A. Agassiz, the director of the Museum of Comparative Zoölogy, has distributed to correspondents in this country M.